

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.- 12. (Cancelled)

13. (Currently amended) An apparatus for processing a substrate, comprising:

a top and bottom proximity head defined in a non-contact orientation from the substrate, each proximity head defined to generate a fluid meniscus to process a substrate surface₁ [[:]] the proximity head having a head surface that includes a plurality of discrete conduits for delivering and removing fluid to define the fluid meniscus that is contained between the head surface and the substrate surface;

a chamber configured to house the top and bottom proximity heads, wherein the top proximity head faces the fluid meniscus down on top of the substrate and the bottom proximity head faces the fluid meniscus up toward the substrate; and

an environment generator coupled to the chamber, the environment generator is defined to produce an environmental control gas that is communication with the chamber through a conduit, such that the chamber maintains the environmental control gas in and around the proximity head that is housed by the chamber.

14. (Cancelled)

15. (Currently amended) An apparatus for processing a substrate as recited in claim 13, wherein the environment generator is a bubbler.

16. (Original) An apparatus for processing a substrate as recited in claim 15, wherein the bubbler is configured to input a gas into a liquid bath and further configured to capture the gas that has traveled through the liquid bath.

17. (Original) An apparatus for processing a substrate as recited in claim 13, wherein the environmental control gas is a high relative humidity gas.

18. (Original) An apparatus for processing a substrate as recited in claim 13, wherein the environmental control gas maintains a concentration of a particular liquid in water.

19. (Original) An apparatus for processing a substrate as recited in claim 18, wherein the particular liquid is one of isopropyl alcohol, DIW and IPA, alcohol, DIW and alcohol, ketone, and ether.

20. (Currently amended) An apparatus for processing a substrate, comprising:
a first proximity head defined to generate a fluid meniscus to process a substrate surface, the first proximity head having a head surface that includes a plurality of discrete conduits for delivering and removing fluid to define the fluid meniscus that is contained between the head surface and the substrate surface, the head surface of the first proximity head being in a non-contact orientation from the substrate; and

an inlet located on the head surface of the proximity head, the inlet being separate from the plurality of discrete conduits for delivering and removing the fluid to define the fluid meniscus, the inlet defined to apply an environmental control gas to a region between the head surface and the substrate surface that is on a leading edge side of the proximity head,

wherein the substrate is configured to move relative to the first proximity head to act on unprocessed surface regions, such that the leading edge side of the proximity head encounters

the unprocessed surface regions first, before the fluid meniscus encounters the unprocessed surface regions.

21. (Original) An apparatus for processing a substrate as recited in claim 20, wherein the environmental control gas reduces an evaporation rate of fluids from a surface of the proximity head.

22. (Original) An apparatus for processing a substrate as recited in claim 20, wherein the environmental control gas is a high relative humidity gas.

23. (Original) An apparatus for processing a substrate as recited in claim 20, wherein the gas with a high relative humidity has a relative humidity between about 50% and about 100%.

24. (Original) An apparatus for processing a substrate as recited in claim 22, wherein the gas with the high relative humidity has a relative humidity between about 90% and about 100%.

25. (Original) An apparatus for processing a substrate as recited in claim 22, wherein the gas with the high relative humidity has a relative humidity of about 100%.

26. (Original) An apparatus for processing a substrate as recited in claim 20, wherein the environmental control gas maintains a concentration of a particular liquid in water.

27.-32. (Cancelled)

33. (Currently amended) An apparatus for processing a substrate, comprising:

a first arm;

a first proximity head coupled to the first arm that places the first proximity head in a non-contact orientation relative to the substrate, the first proximity head defined to generate a first fluid meniscus to process a top side of a substrate surface, the first proximity head having a head surface that includes a plurality of discrete conduits for delivering and a plurality of discrete conduits for removing fluid to define the first fluid meniscus that is to be contained between the head surface of the first proximity head and the top side of the substrate surface;

a second arm;

a second proximity head coupled to the second arm that places the second proximity head in a non-contact orientation relative to the substrate, the second proximity head defined to generate a second fluid meniscus to process a bottom side of the substrate surface; the second proximity head having a head surface that includes a plurality of discrete conduits for delivering and a plurality of discrete conduits for removing fluid to define the second fluid meniscus that is to be contained between the head surface of the second proximity head and the bottom side of the substrate surface, the first and second proximity head configured to operate substantially simultaneously; and

a chamber configured to house the first and second proximity heads, the chamber having inputs to supply an environmental control gas, the chamber being defined to maintain the environmental control gas in a particular condition when the first fluid meniscus and the second fluid meniscus are defined.

34. (Cancel)

35. (Currently amended) An apparatus for processing a substrate, comprising:

a first arm;

a first proximity head coupled to the first arm that places the first proximity head in a non-contact orientation relative to the substrate, the first proximity head defined to generate a first fluid meniscus to process a top side of a substrate surface, the first proximity head having a head surface that includes a plurality of discrete conduits for delivering and a plurality of discrete conduits for removing fluid to define the first fluid meniscus that is to be contained between the head surface of the first proximity head and the first side of the substrate surface;

a first fluid sensor associated with the first proximity head;

a second arm;

a second proximity head coupled to the second arm that places the second proximity head in a non-contact orientation relative to the substrate, the second proximity head defined to generate a second fluid meniscus to process a bottom side of the substrate surface; the second proximity head having a head surface that includes a plurality of discrete conduits for delivering and a plurality of discrete conduits for removing fluid to define the second fluid meniscus that is to be contained between the head surface of the second proximity head and the bottom side of the substrate surface, the first and second proximity head configured to operate substantially simultaneously;

a second fluid sensor associated with the second proximity head;

a chamber configured to house the first and second proximity heads; and

a control input for configuring delivery of an environmental control gas into the chamber, the control input receiving data from the first and second fluid sensors so as to configure the delivery of the environmental control gas.